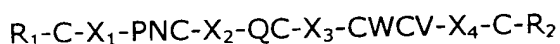


**CLAIMS:**

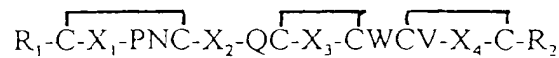
1. Peptides, characterized in that their amino acid sequence corresponds to parts of the amino acid sequence of insulin-like growth factor binding protein, and cyclic, glycosylated, phosphorylated, acetylated, amidated and/or sulfated derivatives thereof.
2. The peptides according to claim 1, characterized in that said peptides can be isolated from hemofiltrate.
3. The peptides according to either of claims 1 and/or 2, characterized in that said peptides have a length of from 61 to 115 amino acids.
4. The peptides according to any of claims 1 to 3, characterized in that said peptides have sequences which correspond to N- or C-terminal sequences of insulin-like growth factor binding protein.
5. The peptides according to at least one of claims 1 to 4 having an amino acid sequence of formula



wherein

$R_1$  is  $NH_2$ , an amino acid or a peptide having an amino acid sequence comprising up to 41 amino acids,  $X_1$  is a peptide having an amino acid sequence comprising from 24 to 31 amino acids,  $X_2$  is a peptide having an amino acid sequence comprising 9 amino acids,  $X_3$  is a peptide having an amino acid sequence comprising 10 amino acids,  $X_4$  is a peptide having an amino acid sequence comprising from 18 to 24 amino acids,  $R_2$  is  $COOH$ ,  $CONH_2$  or a peptide having up to 12 amino acids, and cyclic, glycosylated, phosphorylated, acetylated, amidated, sulfated derivatives and or fragments thereof having the physiological activity of IGFBP.

6. The peptides according to at least one of claims 1 to 5 having disulfide bridges of formula



7. The peptides according to at least one of claims 1 to 6, characterized in that  $X_2$  has a glycine on position 4 of its amino acid sequence, and/or  $X_3$  has a glycine on position 9 of its amino acid sequence, and/or  $X_4$  has a glycine on position 4 or 5 of its amino acid sequence, and/or  $X_4$  has a glycine on position 9 or 10 of its amino acid sequence.
8. The peptides according to at least one of claims 1 to 7, characterized in that  $X_1$  is L or V on position 8, and/or  $X_1$  is L or I on position 11, and/or  $X_2$  is D or N on position 1, and/or  $X_2$  is K or R on position 9, and/or  $X_3$  is S or A on position 3 and/or R or A on position 8.
9. The peptides according to at least one of claims 1 to 8, characterized in that  $R_1$  is selected from

APSEEDHSILWDAISTYDGSKALHVTNIKKWKEP,  
GGKHHLGLEEPKKLRPPPARTP  
GKGGKHHLGLEEPKKLRPPPARTP,  
GHAKDSQRYKVDYESQSTDTQNFSSSESKRETEYGP,  
KVNGAPREDARVPVQGS,  
LTQSKFVGGAENTAHPRIISAPEMRQESEQGP,  
PQAGTARPQDVNRRDQQRNPGTSTTPSQPNSAGVQDTEMGP.

10. The peptides according to at least one of claims 1 to 9, characterized in that  $X_1$  is selected from

RIELYRVVESLAKAQETSGEEISKFYI,  
QQELDQVLERISTMRLPDERGPLEHLYSLHI,  
RREMEDTLNHLKFLNVLSPRGVHI,

QSELHRALERLAASQSRTHEDLYIPI,  
RRHMEASLQELKASPRMVPRAVYL,  
RRHLDSVLQQLQTEVYRGAQTLYV.

11. The peptides according to at least one of claims 1 to 10, characterized in that  $X_2$  is selected from

NKNGFYHSR,  
DKHGLYNLK,  
DKKGFYKKK,  
DRNGNFHPK,  
DRKGFYKRK,  
DHRGFYRKR.

12. The peptides according to at least one of claims 1 to 11, characterized in that  $X_3$  is selected from

ETSMDGEAGL,  
KMSLNGQRGE,  
RPSKGRKRGF,  
HPALDGQRGK,  
KPSRGRKRGI,  
RSSQGQRRGP.

13. The peptides according to at least one of claims 1 to 12, characterized in that  $X_4$  is selected from

YPWNGKRIPGSPEIRGDPN,  
NPNTGKLOQGAPTIRGDPE,  
DKYGQPLPGYTTKGKEDVH,  
DRKTGVKLPGGLEPKGELD,  
DKYGMKLPGMEYVDGDFQ,  
DRMGKSLPGSPDGNGSSS.

14. The peptides according to at least one of claims 1 to 13, characterized in that  $R_2$  is selected from

QIYFNVQN,  
HLFYNEQQEARGVHTQRMQ,  
HLFYNEQQE,  
YSMQSK,  
HQLADSFRE,  
HTFDSSNVE,  
PTGSSG.

15. The peptides according to any of claims 1 to 14, characterized in that said peptides are selected from

**IBP-1**

APSEEDHSILWDAISTYDGSKALHVTNIKKWKEPCRIELYRVVESLAKAQETSGEEI  
SKFYLPNCNKNGFYHSRQCETSMDGEAGLCWCVYPWNGKRIPGSPEIRGDPNCQI  
YFNVQN

**IGFBP-2**

GKGGKHHLGLEEPKKLRPPPARTPCQQELDQVLERISTMRLPDERGPLEHLYSLHIP  
NCDKHGLYNLKQCKMSLNGQRGECWCVPNTGKLIQGAPTIRGDPECHLFYNEQ  
QEARGVHTQRMQ

GGKHHLGLEEPKKLRPPPARTPCQQELDQVLERISTMRLPDERGPLEHLYSLHIPN  
CDKHGLYNLKQCKMSLNGQRGECWCVPNTGKLIQGAPTIRGDPECHLFYNEQQ  
EARGVHTQRMQ

**IGFBP-3**

GHAKDSQRYKVDYESQSTDTQNFSSSESKRETEYGPCRREMEDTLNHLKFLNLVLS  
RGVHIPNCDKKGFYKKKQCRPSKGRKRGFCWCVDKYGQPLPGYTTKGKEDVHCY  
SMQSK

KVDYESQSTDTQNFSSSESKRETEYGPCRREMEDTLNHLKFLNLVLS  
PNCDDKKGFYKKKQCRPSKGRKRGFCWCVDKYGQPLPGYTTKGKEDVHCYS  
MQSK

HPLHSKIIIIKKGHAKDSQRY

**IGFBP-4**

DEAIHCPPCSEKRLARCRPPVGCEELVREPGCGCCATCALGLGMPCGVYTPRCGSG  
LRCYPPRGVEKPLHTLMHGQGVCMELAEIEAIQESLQPSDKDEGDHPNNSFSPCSA  
HRRCLQKHFAKIRDRSTSGGKM

KVNGAPREDARVPVQGSCQSELHRALERLAASQSRTHEDLYIIPNCDRNGNFHP  
KQCHPALDGGQRGKCWCVDRKTGVKLPGGLEPKGELDCHQLADSFRE

**IGFBP-5**

LTQSKFVGGAENTAHPRIISAPEMRQESEQGPCRRHMEASLQELKASPRMVPRAV  
YLPNCDRKGIFYKRKQCKPSRGRKRGICWCVDKYGMKLPGMEYVDGDFQCHTFDS  
SNVE

KFVGGAENTAHPRIISAPEMRQESEQGPCRRHMEASLQELKASPRMVPRAVYLP  
NCDRKGIFYKRKQCKPSRGRKRGICWCVDKYGMKLPGMEYVDGDFQCHTFDSSN  
VE

HTRISELKAEAVKKDRRKKLTQS

**IGFBP-6**

PQAGTARPQDVNRRDQQRNPGTSTTPSQPNSAGVQDTEMGPCRRHLDVSLQQLQ  
TEVYRGAQTLVYNCDHRGFYRKRQCRSSQGQRRGPCWCVDRMGKSLPGSPDG  
NGSSSCPTGSSG.

16. A method for the preparation of the peptides according to at least one of claims 1 to 15 by purification from human hemofiltrate or urine, by solid-phase peptide synthesis, or by expression in recombinant microorganisms.
17. Complexes of peptides according to at least one of claims 1 to 15 with hIGF-I (human insulin-like growth factor I, MW 7649) or hIGF-II (human insulin-like growth factor II, MW 7491) and its biologically active fragments and/or derivatives, especially amidated, acetylated, sulfated, phosphorylated and/or glycosylated derivatives.

18. A nucleic acid, characterized by coding for peptides according to at least one of claims 1 to 15.
19. Antisense nucleotide, characterized by binding, under stringent conditions, to a nucleic acid sequence coding for a peptide according to at least one of claims 1 to 15.
20. Antibody, characterized by binding to a peptide according to at least one of claims 1 to 15.
21. Inhibitor, characterized by inhibiting the biological activity of peptides according to at least one of claims 1 to 15.
22. Inhibitor, characterized by inhibiting the expression of peptides according to at least one of claims 1 to 15.
23. Use of peptides according to at least one of claims 1 to 15, complexes according to claim 17, nucleic acids according to claim 18, for the preparation of a medicament for treating the underexpression of insulin-like growth factor binding proteins.
24. Use of antisense nucleotides according to claim 19, antibodies according to claim 20, inhibitors according to claim 21 and/or inhibitors according to claim 22 for the preparation of a medicament for treating the overexpression of insulin-like growth factor binding proteins.
25. A medicament containing the peptides according to at least one of claims 1 to 15, complexes according to claim 17, nucleic acids according to claim 18, antisense nucleotides according to claim 19, antibodies according to claim 20, inhibitors according to claim 21 and/or inhibitors according to claim 22 in a pharmaceutically acceptable dosage form for oral, intravenous, intramuscular, intracutaneous, intrathecal administration, or as an aerosol for transpulmonary administration.

26. Use of a medicament according to claim 25 for treating muscular atrophy, osteoporosis, diabetes, amyloid lateral sclerosis, peripheral and central neuropathies, inflammatory processes, disordered inflammatory reactions, tumor diseases, inflammatory and neoplastic diseases, disturbance of growth, muscular affections, affections of the bone system, and/or for wound and bone healing.
27. Use of the nucleic acid according to claim 18 and/or the antisense nucleotides according to claim 19 for the preparation of a medicament for treating somatic or non-somatic genetic diseases.
28. Diagnostic agents containing the peptides according to at least one of claims 1 to 15, complexes according to claim 17, nucleic acids according to claim 18, antisense nucleotides according to claim 19, antibodies according to claim 20, inhibitors according to claim 21 and/or inhibitors according to claim 22, and further auxiliaries.
29. Use of the diagnostic agents according to claim 28 for diagnosing functional disorders in bones, muscles, the nervous system, lymph organs, the gastrointestinal tract, the immune system, and of diabetes and inflammatory and neoplastic processes, and as a marker in cancer.